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The above theories relating to the causes of flights of hawks and of other land birds also, seem to be absolutely substantiated by all data which I have been able to procure, and although I found that the evidences were always in favor of the foregoing explanation of the flight of hawks in Connecticut, I wished to make observations over a number of years, in consequence of which I am able to present a complete list of the flights which have occurred at intervals during the last decade,—1885 to 1895.

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NOTES ON THE ANCIENT MURRELET (*SYNTHLIBORAMPHUS ANTIQUUS*), BY CHASE  
LITTLEJOHN. WITH ANNOTATIONS.

BY MAJOR CHARLES BENDIRE.

AMONG our North American Waterbirds, there are few whose general habits, etc., are less known to ornithologists than the Murrelets representing the genera *Synthliboramphus* and *Brachyramphus* Brandt; and in fact we know scarcely anything about the majority of the species belonging to them.

The best known of these is the Ancient Murrelet, also sometimes called Black-throated Guillemot and *Starik* (Old Man) by the Russians. Its geographical range extends along both the coasts and islands of the North Pacific from Japan and the Kurils, north to Kamchatka, Asia and across the Alaska Peninsula, south to Puget Sound, Washington, and perhaps still farther in this direction in winter.

Mr. Chase Littlejohn of Redwood City, California, who spent the spring and summer of 1894 on different islands of the Alaska Peninsula, engaged in making natural history collections, has kindly furnished me with the following notes on this still little known species, which I deem of sufficient interest and importance to publish at once, particularly as it may draw the attention of collectors to some of the other species found along the coasts of the Pacific Ocean, which are still less known and whose general habits are probably very similar.

All of our Murrelets spend the greater part of the year, as far as known, on the ocean, and mostly out of sight of land, only

visiting the coasts of the mainland and the numerous islands for the purpose of reproduction.

Mr. Littlejohn says: "We were about 180 miles east by south from Unga (a small island south of Sand Point on the Alaska Peninsula, in about latitude 55°, longitude 160°), when this hardy bird was first seen. They were usually in twos and threes and scattered among large flocks of Crested Auklets (*Simorhynchus cristatellus*). One would think at first that they were amusing themselves by flying a short distance ahead of the ship, dropping into the water and swimming in, so as to be near the bow as the vessel passed, thus diving beneath the hull and coming up again just under the stern. After they had dropped astern a few hundred feet, they took wing and repeated this manœuvre with unvarying precision throughout the entire day. By close watching I found that it was not for pleasure they did this, but that they were feeding on small invertebrates, such as are found on ships' bottoms. At such times they are very unwary and can be easily taken with a dip net alongside of the vessel, as can also the Crested Auklet, the latter on the wing, while flying in circles about the vessel. From the time the first were seen until land was sighted there were always some about, but as we neared the land or got on soundings, they became more plentiful and did not follow the ship any farther, owing most likely to food becoming more abundant.<sup>1</sup>

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<sup>1</sup> "In order to make this statement a little clearer I will try to explain it according to my theory on this subject. During the severe and stormy weather found here during winter and early spring, most of these birds do not remain near land, but probably go far out to sea. I believe this to be the case from having seen them in such localities both in the fall and spring, where the weather is influenced by the Japanese current; here also in the warmer water food would be more readily found. They remain about here until the severe weather is over and then gradually make their way towards land, following probably the main food supply. All the birds I caught were very poor in flesh and being the laggards of the flock, had remained too long behind, until after food had become too scarce to supply them where a short time before there was sufficient. Numerous invertebrates always gather about a vessel's bottom and the birds finding them more abundant there than elsewhere, follow in order to feed upon them, and upon reaching shoaler water they apparently come up once more with their main food supply and therefore give up the chase."

"By June 2 their nesting grounds were reached, but no birds were to be found, and to one unacquainted with their habits there was no sign of their having yet arrived. Nevertheless we land, pitch our tent, and wait until the close of that long twilight which is only found in the far north, and just as it merges into night we see a bat-like form flit by, and presently from somewhere in the gloom comes an abrupt and startling *kroo-kroo-coo*, which is at once answered with a like call, or with a nerve-destroying *kwéé-ké-ké-ké* in a very high, shrill key, the call-note of Leach's Petrel (*Oceanodroma leucorhoa*). Presently we hear a whir of wings in different directions, then more voices, pitched in various keys, and before we are scarcely aware of it, both heaven and earth seem to vibrate with rumbling noises and whir of wings.

"As we step out of our tent perfectly astonished at this sudden change, and move to the foot of a small knoll near by, listening to this violent outburst of noises, a muffled sound comes right from under our feet. We stoop and discover a small burrow in the earth and from it come the cooing love-notes of a Petrel, *k-r-r-r*, *k-r-r-r*, and this is its home. Just from a somewhat larger burrow, only a few feet to our right, comes another sound, and moving cautiously in this direction we listen to the love-note of Cassin's Auklet, which reminds one of the sounds produced by a squeaky buck-saw, while passing through a hard knot, somewhat like *kwéé-kew*, *kwéé-kew*, which fortunately lasts only for three or four hours each night. These noises, coming as they do from hundreds of Auklets and thousands of Petrels, become almost distracting and banish sleep most effectually, for the first few nights on the island.

"These, then, are some of our Murrelet's neighbors, but where is he? We listen in vain for some note of his, but hear none. As we walk on a little distance among the tall grass of last year's growth, we notice a small dark object flapping about, and after a short chase we manage to capture it and discover our 'Old Man,' but fail to locate his nest, one of the main objects of our long and tedious voyage, and we did not succeed in finding one containing eggs until the 11th of June. This was principally because they had not commenced to lay sooner, and partly, also, because

we did not then look in the places — under rank matted grass — which are mostly preferred by this Murrelet for nesting sites.

“We remained on this desolate, wind-swept island from May 29 until June 12. Our days were spent in hunting, preparing skins and eggs, but time passed slowly. At first we looked forward to night in order to renew our acquaintance with our feathered neighbors, but after losing about a week’s sleep, owing to their squeaking, I at least felt like choking the whole lot; and as if not satisfied with the constant babble of their neighbors, the Murrelets took especial delight in alighting at the foot of our A-shaped tent, toenailing it up to the ridge pole, resting there a moment, and then sliding down on the other side. This exercise seemed to amuse them, and it certainly did us, until the novelty wore off, as it was not conducive to a restful sleep, and finally, tiring of this, and finding but few Murrelets’ eggs, we broke camp and started for the mainland, and did not return to the island again until June 23.

“In a short time after the first birds arrive on their breeding grounds, and before one has time to realize it, the entire surface of certain favorite islands is literally alive with Murrelets and Auklets, in the proportion of about two of the latter to one of the former, as well as of both Leach’s and Fork-tailed Petrels (*Oceanodroma furcata*), the first greatly outnumbering the last. When one walks about at this time, the Murrelets and Auklets become frightened, running, flopping, and flying about in such numbers, that one has to be careful where he steps, lest they be crushed under foot. If it is windy, and it usually is, they are on the wing at once as soon as disturbed, and are quickly out of sight, but when a calm prevails they have to flop to the side of a steep bank where they can jump off, and thereby gain sufficient headway to keep on the wing, and then in their frantic efforts to be off, they become bewildered and are just as apt to fly in one’s face, or against the cliffs, as anywhere; although they usually strike with great force when fairly started, I have never seen one killed or even stunned. They no sooner touch the earth, than they are flopping off again at a great rate.

“It is a difficult matter to calculate the numbers that visit this small island annually, but they certainly number several thousand and if left unmolested by man the island would soon become too

small to accommodate their natural increase, but such is by no means the case. The native Aleuts know, almost to a day, when the first ones will arrive, and are there to meet them, invading the island armed with stout clubs, and every bird, Auklet or Murrelet, that is overtaken is promptly clubbed to death and thrown into a sack carried for this purpose. At each of these raids hundreds of these birds are killed, and as they are made frequently and throughout the entire season, it is astonishing that any remain. But this is not all; as soon as day dawns, the entire crew sets out to make a systematic search for eggs, which are well flavored and good eating, each one striving to get more than his mates; and as it makes no difference to a native whether they are fresh or on the point of hatching, everything goes. Fortunately it is impossible to find all the nests, or kill all the birds, so enough remain to stock the island again another season.

“By no means every island in this vicinity is occupied by Murrelets. Within 400 yards of the one of which I write is another of about the same size and topography, but strange to say, no Murrelets are found on it, although there are two or three small colonies of Auklets, the remainder of the island being given over to Leach's Petrels. Again on two other small islands, also near together, each containing about a couple of acres, and in every way alike, one is given over entirely to Auklets, while on the other the Murrelets have almost complete control. These facts cause me to believe that the birds always return to the island on which they have been reared.

“On June 23 our party returned to the island on which we first landed, and found to our great satisfaction that the Murrelets' eggs were more plentiful than on our former visit, and a few of them were taken. We also soon discovered that they were not especially particular in the selection of a nesting site. An abandoned burrow of Cassin's Auklet, a dark crevice in cliffs, under large broken rocks which had fallen from the latter, or under large tussocks of rank grass, with which the higher portion of the island was covered, would answer equally well. Under these almost solid bunches (the grass remaining from several previous years), the Murrelets would force their way, leaving only a slight hole in the mass, which usually was very hard to detect. After once gaining

an entrance into this matted vegetation and working their way in for two or three feet, a shallow cavity, about five inches in diameter and two or three inches deep, was scratched out and this was nicely lined with blades of dry grass of last year's growth, carried in from the outside, making a very neat and snug home, in which the two beautiful eggs, comprising a set, were deposited. Some of their nests were found fully two hundred yards from the water. In the other situations mentioned little and often no nest is made, and the eggs are deposited on the bare rocks, in the soft sand, or on the wet, muddy soil. I even took several sets on the bare ice at the bottom of some Auklets' burrows, the ground being still frozen, immediately beneath the grass and moss on July 3, when I left the island.

"The setting bird will sometimes leave the nest when danger threatens, but it will frequently allow itself to be taken from the eggs, and when brought to light it will screech, scratch, and bite with vigor. When released they cannot fly unless thrown into the air, and will then often fall back to earth. One evening, just at dusk, I was crouched in the grass waiting for a shot at a Peale's Falcon (*Falco peregrinus pealei*), who made regular trips to the island to prey on the Auklets and Murrelets, when I heard a very low but rather shrill whistle. Turning my attention to the spot from which it seemed to come, I listened; presently I heard it again, but was still unable to locate the bird, which I afterward found to be a Murrelet. Subsequent observations proved that this was a call-note uttered just about the time the setting bird expected the return of its mate, and was evidently uttered to attract his or her attention, for as far as my observations went, they, like the Auklets, exchange places nightly, and while one attends to the home cares, the other is usually a number of miles out at sea on the feeding grounds. This call-note is the only one I could attribute to this species while on land, and so ventriloquial are their powers, that in only two instances did I succeed in locating the nest from the sound. While out at sea, the Ancient Murrelet utters a peculiar piping whistle, entirely different from the one uttered while on the nest.

"What their food consists of at this time of the year I am unable to say, for when they returned to the land it was so far

digested that it was impossible for me to determine, and I did not have an opportunity to kill a specimen while feeding. But let it be what it may, it certainly gives the flesh quite an agreeable flavor, next, in my opinion, to that of a Cassin's Auklet, which is the tablebird *par excellence* among the sea fowl of the North Pacific. The egg, also, is excellent eating and is hardly surpassed in flavor by that of the domestic hen. Two eggs are laid to a set, the second is deposited after an interval of two or three days, and frequently three or four days elapse before incubation begins. Occasionally two birds will occupy the same nest; at least I have found three and four eggs in one, and I have also found one in the nest of a Red-breasted Merganser (*Merganser serrator*). During the day, while the breeding season is on, a very few birds may be seen near land, but off shore they will be met with in small flocks of from six to eight, and occasionally a flock of one hundred or more can be seen.

"I left the rookery on July 3, and was therefore unable to determine the period of incubation, or the time the young remain in the nest, but in former years off the coast of some of the Kuril Islands, I have seen numbers of old birds accompanied by half grown young, still unable to fly, about the middle of September, sometimes four or five hundred miles from land, thus proving that they must leave their breeding grounds when still very small. At that age, the young, like the old, are great divers, and no matter how long the parent remained below, or how far she dived, the young would always break water at the same time and in the same place, just at the old bird's tail. During the winter they scatter and can be found in small numbers most anywhere about or between the islands, and at this time they also associate with the Crested and Least Auklets (*Simorhynchus cristatellus* and *S. pusillus*), and the Marbled Murrelet (*Brachyramphus marmoratus*).

"Great numbers of these birds are taken by Peale's Falcon, who seems to be one of their principal enemies next to man. As I have already stated, the Murrelets are mainly found at some distance from land during the day, and here too, this Falcon pursues them, watching for a chance to seize any Murrelet he succeeds in driving from the water. After having secured its prey, the Falcon



circles about for a short time and then partakes of its meal. To do this he hovers, remaining almost stationary for several minutes at the time; in the mean time the prey is raised well up to the beak with both feet, and promptly devoured. When the Murrelets return to the land at nightfall, the Falcon is there also to meet them, and soon again secures his nightly repast."

The eggs of the Ancient Murrelets are quite large considering the size of the bird, while their odd and peculiar coloration gives them a rather unique appearance, and I am unable to point out those of any other North American species which they resemble at all closely, and on account of the remoteness of their principal breeding-grounds, they still remain quite rare in oölogical collections. In shape they vary from elliptical ovate to elongate and cylindrical ovate, the elongated ovates predominating. Their shell is fine-grained, moderately strong, although rather thin, and it shows little or no gloss. They are rather difficult to describe accurately, their ground color being variable and of subtle tints not readily expressed on paper, ranging from a bluish milky-white through the different shades of cream color, vinaceous, olive and salmon buffs to a rich vinaceous cinnamon and ecru-drab color. They are generally moderately well flecked, blotched, or spotted with small irregular shaped markings of different shades of brown, fawn and isabella color, mixed with more subdued shades of ecru-drab, lavender, and lilac-gray. The markings are distributed over the entire surface, and are usually heaviest about the larger end of the egg, but never so profuse as to hide the ground color. In an occasional specimen, they show a tendency to run into irregular and mostly longitudinal lines or tracings; in others these markings are more bold, coarse, and fewer in numbers, and a single specimen before me shows comparatively few and rather faint markings.

On the whole the egg of the Ancient Murrelet is a rather characteristic one, and not readily mistaken for anything else. The first specimens to find their way into the Oölogical Collection of the U. S. National Museum were obtained by Dr. W. H. Dall of the U. S. Coast Survey, at the Chica Islets in Akutan Pass, near Unalaska Island, Alaska, on June 2, 1872. In his interesting notes on the Avi-fauna of the Aleutian Islands, from Unalaska Eastward, published in the Proceedings of the California Academy

of Sciences on Feb. 8, 1873, the Doctor briefly refers to the breeding habits of this then little known species, and the eggs taken by him there were subsequently described in the 'Water-birds of North America,' by Baird, Brewer and Ridgway (Vol. II, 1884, p. 505).

The average measurement of 45 eggs of this species, now before me, is 2.41 by 1.52 inches, the largest specimen measuring 2.51 by 1.57 inches, the smallest 2.27 by 1.39 inches.



## DESCRIPTION OF TWO NEW SPECIES OF BIRDS FROM SAN DOMINGO.

BY CHARLES B. CORY.

Among the birds brought from San Domingo by Mr. George K. Cherrie are two interesting novelties which I have named as follows:—

### ***Hyetornis fieldi*, sp. nov.**

*Type*, F. Mus.—Field Columbian Museum, Chicago, Ill. *Male* ex Maniel, San Domingo, April 5, 1895. Geo. K. Cherrie, collector.

*Sp. Char.*—*Male*: Upper parts, including upper tail-coverts, slaty, showing a faint trace of olive in some lights; a dusky stripe in front of the eye; throat, breast, and upper belly chestnut brown, belly tawny becoming pale on the crissum; primaries deep chestnut brown shading to olive at the tips; under wing coverts tawny; shafts of quills (except the first) strongly tinged with rufous brown; under surface of primaries and secondaries rufous shading to slaty olive at tips; tail-feathers (except two central ones) bluish black tipped with white and shading to pale olive at the base; two central tail-feathers pale olive becoming brownish at tips; bill dark showing a tinge of dull yellow at middle of lower mandible; legs and feet black.

Length, 16.75; wing, 6.50; tail, 10.50; bill, 1.30; tarsus, 1.50 inches.